

**Projects Within the Imnaha WSR**

Final Rearing Facility

Satellite Facility

**Evaluation under the "Direct and Adverse Effects" Standard**

Free-flowing Condition

Water Quality

Outstandingly Remarkable Values

## **Innaha Final Rearing Facility**

The following discussion is focused on those components of the Innaha Final Rearing Facility that affect the river's free-flowing condition and are therefore water resources projects subject to Section 7(a). Project proposals are evaluated as to their effect on the river's free-flowing condition, water quality, and outstandingly remarkable values (ORV). A detailed project description is provided in the introduction of the *Wild and Scenic Rivers Act Preliminary Section 7 (a) Determination*.

Components of the Innaha Final Rearing Facility that are or appear to be within the ordinary high water mark of the river include:

- A water intake structure, associated excavation of rock abutment, and 50 feet of the pipeline from the intake to the hatchery
- A fish bypass pipeline, outfall and riprap, and associated pool
- An outfall structure and 200 cubic yards of associated riprap
- Concrete abutments for a new bridge, associated riprap, and removal of old bridge abutments

The proposal also includes placement of flood-protection fill to keep the river from overtopping its west bank during high water events (NEOH DEIS 3-75). Fill placement is described as "upland of riparian vegetation" (NEOH DEIS 3-29). The extent (dimension) of this activity is unclear, as is its location relative to the river's bed and banks. However, based on the description provided in the NEOH DEIS, this fill will affect the river's ability to access its floodplain in the project area, and downstream from the project is likely to result in flooding, scour and erosion. It is considered in this analysis.

Refer to Figure 2.6 (NEOH DEIS page 2-12, also reproduced in *Wild and Scenic Rivers Act Preliminary Section 7(a) Determination*) for a detailed drawing of the proposal.

### **Description of Effects to Within-Channel Conditions**

#### Position of the proposed activity relative to streambed and stream banks

##### *Water intake, excavation of rock abutment, and associated pipeline:*

"The intake structure would be located on the west bank of the river, about 1,200 feet upstream of the proposed outfall site. Installation of the structure would require the excavation of an existing rock abutment and the use of a fill cofferdam and two dewatering pumps. The pumps would discharge water through a sediment pond located within the upland meadow prior to being discharged back to the Innaha River downstream of the construction area. The cofferdam is proposed for installation from the end of the existing irrigation channel and access road to about 50 feet upstream of the intake location. The river would be diverted to the east bank. Construction equipment would be driven across the pasture from the existing bridge to the cofferdam area via a temporary access road" (NEOH DEIS 3-29).

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Note: The NEOH DEIS states the distance between intake and outfall at 1200 (DEIS 3-29) and 1900 feet (NEOH DEIS 3-84), respectively.

"The first section (about 50 feet) of the surface water diversion pipeline would be imbedded below the water surface into the west bank via trenching, then mortared with rocks to mimic natural substrate. The remaining sections of the pipeline would be installed within an existing irrigation ditch, requiring the removal of some non-riparian vegetation. Installation of this pipeline could result in temporary increases in sediment, but erosion control devices would be in place to minimize sedimentation and contain it within the cofferdam area" (NEOH DEIS 3-29). See also Figure 2-6 (NEOH DEIS 2-12).

*Fish bypass pipeline, outfall and riprap, and associated pool:*

"The intake fish screen would be placed on the upland portion of the site, about 600 feet downstream from the intake. Fish that entered the intake would be returned to the river via a fish bypass pipeline that originates at the screen site. A majority of the fish bypass pipeline construction would take place on the upland portion of the site. The outfall for the bypass line would be located on the west bank as close to the river surface as possible. To aid in returning fish to the river at the bypass outfall, a pool would be excavated at the base of the outfall. Fish may collect within this pool for short periods of time, but would eventually continue their migration" (NEOH DEIS 3-30). The fish bypass outfall "would have riprap flood protection on its upstream and downstream sides. The bypass outfall would be placed outside the main channel..." (NEOH DEIS 3-75). See also Figure 2-6.

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*Project outfall and riprap:*

"The cast-in-place concrete outfall structure would be constructed concurrently with the intake. A small cofferdam and dewatering system would be used to install the outfall. The structure would require 200 cubic yards of riprap flood protection on the upstream and downstream sides of the bank" (NEOH DEIS 3-30). See also Figure 2-6 (NEOH DEIS 2-12).

*Concrete abutments for a new bridge and removal of old bridge abutments:*

"The existing bridge, which is located about three feet lower than the 100-year flood elevation, would be relocated upstream to an area above the 100-year floodplain. Concrete abutments would be placed bankside of the normal flow levels to minimize the need for dewatering. Abutments would likely impact a small amount of riparian vegetation and shading. Disturbed areas of the temporary bridge location would be revegetated" (NEOH DEIS 3-30). "The site is a low-lying, flat basalt bedrock shelf covered by alluvial sediments. The site is only partially flooded during extreme runoff events such as a 100- to 500-year flood" (NEOH DEIS 3-75). See also Figure 2-6.

*Flood-protection fill:*

"To protect the site from flooding, approximately three feet of fill would be placed on the upland side of riparian vegetation. Erosion control devices would be used during site raising to minimize sedimentation. The sites would be revegetated with native species, where appropriate, upon completion of construction" (NEOH DEIS 3-29). This fill will be placed "over the low side of the site to raise it above the current projected 100-year

floodplain. This would reduce flood potential by keeping most major flood events from overtopping the west bank and inundating the proposed facility. A 500-year flood event could potentially inundate the site, disrupt facility operations, overwhelm onsite drainage systems and damage vulnerable equipment (i.e. electric pumps, controllers, raceways, etc)" (NEOH DEIS 3-75).

Changes in active channel location, geometry, slope, and/or form

"The intake structure, although small, could slightly impede or alter natural river flows and thus is considered to be a minor adverse effect to free flow of the river. In addition, when water is taken through the facilities for hatchery operations, the flow in the river channel would be reduced between the intake and outfall, but the river would maintain its free flow appearance overall" (NEOH DEIS 3-84).

"The proposed fish bypass outfall would have riprap flood protection on its upstream and downstream sides. The bypass outfall would be placed outside the main channel and would not impede or alter the typical flow regime" (NEOH DEIS 3-75). The NEOH DEIS does not describe the size of the planned in-channel excavation for the fish bypass pool, how will it be maintained, or potential effects to the channel.

"The main hatchery outfall would be armored with riprap and would only disrupt flow in its immediate vicinity" (NEOH DEIS 3-75).

"The proposed action would remove the existing bridge abutments at the Imnaha Final Rearing Facility, which would eliminate a constriction to river flow. However, the installation of a replacement bridge upstream of the existing bridge would result in placing abutments that would also constrict the natural river flow. This constriction of the natural river flow would be slightly less than under current conditions. The final design of the replacement bridge would result in the bridge abutments being placed in locations that minimize effects on the free flow of the Imnaha River" (NEOH DEIS 3-84).

"While the new bridge abutments would slightly disrupt flow, they would be an improvement over the current situation" (NEOH DEIS 3-75). The NEOH DEIS is not specific as to where the new bridge abutments will be located relative to bankfull flows.

Relative to flood-protection fill, "fill placement on the site would restrict flows during temporary high water events, confining them to the active channel. This would result in higher water levels in the active channel and an increased potential for downstream flooding, scour, and erosion during more extreme events such as 100- to 500-year floods" (NEOH DEIS 3-75).

Relevant water quality parameters

"Instream construction, excavation and grading, bridge construction and placement of fill at the Imnaha Final Rearing Facility could introduce sediment or other construction-related contaminants to the Imnaha River over short periods of time resulting in localized temporary water quality effects. Flow would remain in the channel, but be directed away

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from work areas. Pump discharge would be routed through a sediment basin prior to discharge back into the Imnaha River" (NEOH DEIS 3-76).

Operation of the facility will also result in less water in the project area (between intake and outfall). The amount varies on the water-year but is estimated at "less than 25 percent of the total river flow for periods of average low flow" ranging to up to 50 percent "during below-normal" years (NEOH DEIS 3-76). A permanent reduction of flow in the area between the intake and outfall will occur during the periods of diversion and increase temperature of the reach.

The NEOH DEIS (3-32) also mentions monitoring of the physical properties and chemical constituents in the hatchery effluent in order to insure compliance with water quality standards. No explanation is provided for how this will be done, or of how water quality standards will be met.

#### Navigation of the river

Above the town of Imnaha, including the project area, river flows are too low to accommodate boating.

#### **Riparian, Floodplain and Upland Effects**

##### Vegetation composition, age structure, quantity, or vigor

"Removal of riparian habitat is expected to be limited to the area of the intake pipeline, outfall and bridge abutments. The amount of riparian habitat affected by this removal is about 1600 square feet, which is negligible and would not affect total shading habitat available. Riparian zones would be replanted with native vegetation. The land use change from a cattle pasture would encourage the reestablishment of more diverse native riparian vegetation along the riverbank and decrease some sedimentation" (NEOH DEIS 3-30).

##### Relevant soil properties

"The upland infrastructure required to develop the site into a final rearing facility includes a headbox, raceways, water supply well, shop, residence, and ancillary support facilities. Construction of the proposed facilities would occur on undeveloped pastureland that is currently grazed by cattle. Construction would add about three acres of impervious surfaces to the site, which may lead to increased or rerouted runoff and sediment carried into the river. Increased runoff is expected to be temporary and is not anticipated to exceed a stream's ability to carry sediment away from the site. Associated best management practices to reduce sedimentation are part of the Proposed Action" (NEOH DEIS 3-29). Given the areas of newly created impervious surfaces, increased runoff would appear to be permanent.

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### Relevant floodplain properties

The armoring (riprap) associated with the fish bypass outfall and project outfall will accelerate the river's flow in a localized area, potentially decreasing bank stability and increasing erosion in areas of redirected flow. The flood-protection fill is designed to limit the river access to its floodplain during high water events and may, in such events, result in downstream scour or erosion.

### **Effects to Existing Hydrologic or Biologic Processes Due to Changes in On-Site Conditions**

The project will affect the amount of water in the project area (between intake and outfall).

"The water budget has been designed to adjust the facilities water requirements based on instream flow from year to year, as shown in Table 3.2-11. The 'preferred NATURES' criteria provide an improved rearing/holding environment through the use of higher pond turnover (complete exchange of pond water) rates. The "acceptable NATURES" water strategy, provides an adequate rearing environment, but reduces the amount of water withdrawal and thus reduces turnover rates. The maximum flow required for rearing at the Imnaha Final Rearing Facility is about 23 cfs, based on the 'preferred' NATURES criteria flow scenario. This flow would be required for a short period of time (late February through March) during the transition period of rearing when smolts are on hand. Water use would be non-consumptive; all water withdrawn would be returned to the Imnaha River" (NEOH DEIS 3-31).

"In addition to the water required for rearing, about 10 cfs would be diverted through the intake to operate the fish screening and bypass pipeline. This diversion would take place over the first 600 feet of the total 1,200 feet of diversion from the intake to the outfall. The total diversion at peak usage, therefore, would be about 33 cfs (March) for about 600 feet, and about 23 cfs for the remaining 600 feet to the outfall. During critical low flow years, this water diversion scenario could negatively impact habitat use when the maximum diversion is desired at the facility. Implementation of the "acceptable" rearing criteria surface water withdrawals would then occur" (NEOH DEIS 3-31).

"Peak water diversion in February and March, and withdrawals during low-flow periods (September –October) may adversely affect fish passage through the diversion reach at the Imnaha Final Rearing Facility. The majority of migrating bull trout would be in cooler, upstream waters in September and would move downstream in the late fall when low flow would not impact outmigration. Rapid turn-around bull trout spawners may encounter low flow conditions, depending on water temperatures during each season. Steelhead do not occupy the mid-Imnaha in the fall and winter, but begin upstream migration in early spring (March – April). Early steelhead migrants may be present during the final stages of operation at the Imnaha Final Rearing Facility, when the maximum amount of surface water is diverted (about 33 cfs from intake to fish bypass; then about 23 cfs from bypass to outfall). Therefore, delays to migrating steelhead may

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occur if flows are low during this period. Monitoring would be performed to determine the affect on passage of migrating salmonids. If passage problems are observed, program changes would occur. These may include reducing the required amount of water at facilities to allow for more instream flow, or physical passage of species upstream" (NEOH DEIS 3-32).

"The Imnaha Final Rearing Facility would begin operation during spring/summer Chinook spawning in September when water levels are low; however, most spawning occurs upstream of the facility. If spawning habitat is negatively impacted due to diversion during periods of low flow, modifications to the water management strategy would be implemented. The "acceptable" water strategy, which reduces the amount of water withdrawal could be used if impacts to spawners, caused by low flows, are observed" (NEOH DEIS 3-32).

"Rearing juvenile Chinook and resident fish may be affected by water diversion, but impacts would occur over a brief period of time and are not expected to affect long-term population trends or individual distribution" (NEOH DEIS 3-32).

"Hatchery water would flow constantly through the facility from September through March during final rearing of smolts, and so would not be subject to excessive heating or exacerbate the July to August normal heating which caused the Imnaha River to be listed as water quality limited by OR DEQ. Water temperature changes at the facility, if any, would be temporary, localized and minor. Any such changes are not anticipated to disrupt the behavior or distribution of individual fish adjacent to or downstream of the site" (NEOH DEIS 3-76).

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### **Magnitude and Spatial Extent of Potential Off-Site Changes**

Likely changes from this project proposal include scour and erosion from flood-protection fill and armoring of fish bypass outfall and project outfall. These effects will occur within the project area but are also predicted to occur downstream. The most significant changes are anticipated at high flow events, when the river's access to its floodplain is limited by flood-protection fill.

### **Duration of Effects**

Effects from construction activities will be temporary and localized. Long-term project effects such as erosion from armored fish bypass outfall and project outfall, downstream flooding, scour and erosion resulting from flood-protection fill, and reduced water flow from intake to outfall during portions of the year will persist for the life of the project.

### **Effects to Outstandingly Remarkable Values**

The Imnaha WSR's outstandingly remarkable values (ORV) are its scenery, recreation, fisheries, wildlife, vegetation/botany, history/prehistory, and traditional use/lifestyle adaptation. Each ORV is described through four subsections:

- ORV Description
- Management Goals from the Imnaha WSR Management Plan (Imnaha RMP)
- Discussion in NEOH DEIS
- Description of Project Effects

### Scenery

*ORV Description*—The Imnaha River is recognized for its scenic qualities. The designated WSR traverses the climatic spectrum from glaciated mountains and alpine meadows at over 8,000 feet in elevation, to a rattlesnake and cactus environment at 1,000 feet in elevation at the mouth of the river. The Imnaha River corridor provides one of the greatest contrasts in landforms, vegetation, color, and climate of any WSR component in the inland Northwest. The pastoral setting of the predominately ranch-oriented middle section of the river evokes images of a classical western landscape.

*Scenery Management Goals from the Imnaha RMP*—The visual quality objective (VQO) within the wild river corridor is preservation; the recreational and scenic river corridor VQO is retention. The desired future condition is a natural appearing landscape with a minimum amount of nonconforming visual impacts. As riparian vegetation screening of altered areas increases, the scenic condition of the corridor should improve. New development will be designed to blend with the natural character of the landscape and will conform to the rustic nature of the area. The wild section should remain unchanged with native and natural vegetation predominating. The private land would retain its pastoral setting of western farms and ranches.

*Discussion in NEOH DEIS (3-106)*—“The Imnaha Final Rearing Facility would include three new buildings – a storage/shop building, a single-family residence, and a bunkhouse. These buildings would be wood-sided and located as far from the river as possible within the relatively level portion of the site. Additional facility components would include ten concrete raceways (long rectangular ponds), a concrete intake structure and a concrete outfall, and a cleaning waste basin. The existing access bridge across the Imnaha River would be relocated about 200 feet upstream. Project construction would involve clearing about six acres of pasture land and filling the northern section of the site up to three feet to raise the new facilities above the 100-year flood level. Most of the riparian vegetation would be retained and riparian vegetation would be replanted in the area where the existing bridge would be removed and where additional screening is desired.”

Figure 3.9-9 in the NEOH DEIS (page 3-103) shows “before” and “after” views of the Imnaha Final Rearing Facility site as seen from Imnaha River Road looking south. As shown in the NEOH DEIS visual simulation, the storage building, fill bank, cleaning waste basin and relocation of the existing bridge would be partially visible from this viewpoint. The new facilities would generally be sited within the existing pasture and located to take advantage of screening provided by existing large woody vegetation. Due to vegetation screening, the facilities would be visible to the public intermittently and for a brief duration from limited sections of the roadway. The relocated bridge would be

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visible from the road and would be similar to the existing bridge in appearance and degree of visibility.”

“Although the site is located within a Wild and Scenic River corridor with a “retention” visual quality objective (VQO), the designation does not apply to privately owned lands (U.S. Forest Service 1993a). However, most of the on-site screening vegetation is being retained along the Imnaha River and an informal planting of native trees and shrubs would be strategically planted at the site, along the south side of the Imnaha River Road to screen facilities from roadway views. The buildings would exhibit a simple style, consistent with other buildings in the vicinity (*i.e.*, not starkly different). Exterior colors and materials would be chosen to blend with the surrounding natural landscape. All lighting would be directed on-site. Outdoor lighting would generally be directed downward.” (NEOH DEIS 3-106)

“No inconsistencies with the Wallowa County Comprehensive Land Use Plan relative to visual quality are apparent. Adherence to Wallowa County Land Development Ordinance Development Standards relative to visual concerns would be controlled by building permits.” (NEOH DEIS 3-106)

*Description of Project Effects*—The WSRA does not provide for direct regulation of scenic values on private land within the WSR corridor; however, regulation is possible through the Hells Canyon National Recreation Area (HCNRA) Private Land Use Regulations. The goal of the Imnaha RMP is to work cooperatively with private landowners to achieve conservation of scenic values. In this case, collaboration with BPA on design of the facilities would provide significant improvements. A primary goal of this collaboration would be to avoid an industrial appearance that is common with fish hatcheries.

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The HCNRA Private Land Use Regulations govern the appearance of structures by requiring all new structures be screened and/or constructed of materials that blend with the natural environment. In addition, all new utility lines are to be placed underground. The regulations are part of the approval criteria used by the Wallowa County Planning Department in review of building permit applications.

The proposed facility affects a relatively small area (less than 10 acres), and it is largely screened from most viewpoints. The project does not dominate the scenery, and the area will generally retain its existing appearance. However, there are undesirable effects to scenery that could easily be mitigated to greatly improve the project. Specific improvements could include:

- Design the row of low buildings noticeable from the Imnaha River Road in an architectural style that blends with existing structures in the surrounding Imnaha Canyon
- Design the new bridge in a style similar to farmlands bridges in the area.
- Design structures such as fencing, gates, railings, signs, etc., to be similar to farmland structures of the same type in the area
- Place all new utility lines underground

## Recreation

*ORV Description*—The Imnaha River is recognized nationally for its recreational opportunities. Opportunities to camp, fish, hunt, view wildlife, enjoy outstanding scenery and solitude, and have a pleasurable vacation are perhaps unsurpassed in the Inland Northwest. These recreational opportunities are enhanced as they are nestled between the beautiful Wallowa Mountains and the awe-inspiring Hells Canyon of the Snake River. Another important attribute of the Imnaha River is the year-round access and opportunities that are available.

*Recreation Management Goals from the Imnaha RMP*—The wild segment of the river is semi-primitive/nonmotorized recreation opportunity spectrum (ROS) class from Indian Crossing to the Eagle Cap Wilderness. The ROS class within the wilderness is primitive. The ROS class of the scenic segment of the river is a semi-primitive/motorized, with limited motorized use present as a limited exception to the class. The recreational segment is a combination of rural ROS class on private land and roaded natural ROS class on public lands. In general, the roaded natural ROS class ranges from a more developed setting (Pallette Ranch to approximately Ollokot Campground) and then changes to a less developed and more rustic roaded natural ROS as you leave the vicinity of Ollokot Campground and approach Indian Crossing. Generally, the Imnaha River provides a continuum of ROS classes from a rural setting and more developed roaded natural setting to a less developed and more rustic roaded natural setting, then to semi-primitive setting and finally to a primitive wilderness ROS class.

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*Discussion in NEOH DEIS (3-82)*—“The proposed Imnaha Final Rearing Facility is on private land far from any dispersed or developed recreation site managed for the public. Public recreation is limited to sightseeing and photography from the Upper Imnaha River Road. The site of the Imnaha Final Rearing Facility is not known as a particularly unique sightseeing opportunity or popular photo point. The proposed facility’s effect on sightseeing is discussed above under Scenic ORV.”

*Description of Project Effects*—The project will have limited effects to recreation. The mitigation proposed in the discussion of scenery will protect the recreation setting of the river corridor. The construction of this facility may create recreation use by visitors traveling on the Imnaha River Road, a part of the Hells Canyon Scenic Byway. The BPA should consider the appropriateness of including interpretation at this site (e.g. interpretive signs, parking, restrooms).

## Fisheries

*ORV Description*—Both fish populations and habitat are ORVs. Bull trout, which are indicators of high-quality, clean and cold-water habitat, are well represented in the Imnaha with a healthy population. The Imnaha River contains an unusual run of larger and older Snake River system spring Chinook salmon. The fact that both Imnaha salmon and steelhead production objectives (under fish population management plans by tribal, state, and federal co-managers) rely upon native stocks also makes this river system

uniquely important. The river habitat of the Imnaha has not been significantly affected by human use and therefore is probably not too dissimilar from what it was prior to historic settlement. Land and water uses have had a minimal impact on water quantity and quality. There is one major irrigation withdrawal from the Imnaha drainage in Big Sheep Creek where 162.6 cfs are removed from the system and diverted to the Wallowa Valley.

*Fisheries Management Goals from the Imnaha WSR RMP*—The goal is for stable streambanks, excellent water quality, habitat complexity, natural levels of woody debris, and increased woody debris amounts from Neil Creek to Evergreen Campground. The population of anadromous fish, bull trout, and other native fish will be at or near the carrying capacity of the habitat potential. Many elements of the desired future condition are present in the Imnaha River. Maintaining these conditions is the major task required to achieve the desired future condition.

On National Forest System (NFS) lands, a riparian habitat conservation zone has been established to meet PACFISH (USDA Forest Service, 1994b) direction. This management zone is intended to protect fish habitat and water quality. All ground disturbing or vegetation disturbing activities within the zone must be designed to have no adverse impact on fish habitat or water quality. Any maintenance or reconstruction of existing developments would have to apply this standard and guideline.

*Discussion in NEOH DEIS*—For a description of specific habitat impacts, refer to the description of project effects relative to free-flow (Within-Channel Conditions; Riparian, Floodplain and Upland Effects; Effects to Hydrologic or Biologic Processes Due to Changes in On-Site Conditions; Magnitude and Spatial Extent of Potential Off-Site Changes; and Duration of Effects), in addition to the following description.

#### *Description of Project Effects to Fish Populations*

*Fish Populations*—Resident and fluvial (migratory) forms of bull trout occur in the Imnaha Subbasin (USDA 2000). The Imnaha River bull trout population is considered at “low risk” of extinction (Buchanan et al. 1997). Annual escapement of naturally reproducing steelhead has declined in the past three decades, although recent estimates have increased, ranging from 300 to 1,000 adults (Bryson, et al. 2001). Spring/summer Chinook returns of naturally reproducing fish declined to less than 150 individuals in the early to late 1990s (Oregon Department of Fish and Wildlife (ODFW) 1998). This escapement data led to a determination to supplement the natural population of spring Chinook.

*Facility Construction*—The construction of this facility will temporarily displace fish, affect migration, and remove available habitat. Placement of cofferdams during construction of intake and project outfall will alter stream flow upstream and downstream of the structures and directly reduce instream habitat. Significant amounts of sediment will be added to the river, although the effects of this sediment will be short-term and are not expected to last much beyond the construction period. Associated best management

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practices to reduce sedimentation are part of the Proposed Action; however, no specifics are provided.

Information in the NEOH DEIS is insufficient to evaluate the degree of impact to migrating and resident fish. Fluvial bull trout migration occurs from May through July (J. Harbeck, NPT, pers. comm. 8/11/03). Some fluvial bull trout are migrating toward the upper Imnaha during the instream work window (July 15 to August 15). The increased sediment, reduced available habitat, and the human presence and noise associated with construction activities will have a negative effect on individuals making this migration. Construction impacts could affect reproductive success for fluvial bull trout in the one-year construction period.

Monitoring during construction activities is mentioned in the NEOH DEIS (3-30), but is not explained in enough detail to understand what will be done or how changes in construction activities would be made based on the monitoring.

*Facility Operation*—Peak water diversions in February and March, and withdrawals during low-flow periods (September-October) may adversely affect fish passage through the diversion reach. Post-spawning downstream migration of some fluvial bull trout will likely be affected by low flow conditions in the 1900-foot section between the intake and project outfall. Early adult steelhead migrants may be present during the final stages of rearing operations, when the maximum amount of surface water is diverted (about 33 cfs from intake to fish bypass, and then about 23 cfs from bypass to project outfall). Delays to migrating steelhead may occur if flows are low during this period. Potential effects could lead to spawning failure of individuals in this at-risk population.

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The NEOH DEIS states that monitoring would be performed to determine the affect on passage of migrating salmonids (3-32), and, if passage problems are observed, program changes would occur. The NEOH DEIS does not, however, specify how this monitoring will be done, the timing or recurrence of monitoring, or what specific responses would be employed if fish passage problems are detected.

Rearing juvenile salmonids will likely be negatively effected within the 1900-foot diversion section of the Imnaha River between the intake and project outfall due to seasonal reductions in stream flow. Habitat availability and utilization will be reduced in this reach for the life of the facility (see "Facility Operation" below). Some negative effects will also occur due to loss of rearing habitat resulting from construction of the intake and outfall structures and associated riprap.

*Supplementation*—Natural production of anadromous and resident salmonids is an inherent part of the fisheries ORV of the Imnaha and Lostine WSRs, and protection of natural production is provided in WSR management direction for both WSRs. Specifically, fisheries habitat management direction for these rivers reflects the goal of protecting and retaining natural production. This NEOH supplementation program is intended to conserve and recover the at-risk spring/summer Chinook populations in these two river systems. However, there are significant risks and concerns associated with

operation of this type of conservation hatchery/supplementation program. These risks/concerns have been outlined by the Northwest Power and Conservation Council Independent Science Advisory Board (ISAB) in their June 2003 "Review of Salmon and Steelhead Supplementation". One of the primary conclusions of the review is:

*"Supplementation can reduce the natural spawning fitness component in the integrated populations and this reduction in natural spawning fitness will persist in the natural spawning populations for some number of generations after the termination of supplementation."* Because of this uncertainty, the ISAB recommended the following research and monitoring steps:

- Establish and monitor performance standards for each project for natural-origin and hatchery-origin adult abundance and per capita production rates.
- Conduct all supplementation projects with explicit experimental designs to reduce uncertainty and contain supplementation risks. Establish reference populations, adequate monitoring and objective means to assess when supplementation should be terminated (due to either success or failure).

In its review of this NEOH project proposal, the Independent Scientific Review Panel (ISRP 2001-12C) found that *"The project still lacks a detailed or focused M&E plan...This is not a sound scientific approach and defers the importance of gathering information to evaluate benefit (or costs) to fish and wildlife of construction and operation of the proposed facilities for the Spring Chinook program. This program is inherently experimental and its actions potentially influence many other populations and interests in the region. It appears that the project proponents have made not significant progress in developing M&E plans. This response is inadequate and greater attention to assessment objective, experimental design, and data management is required..."*

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There is little evidence in the NEOH DEIS that these monitoring and evaluation elements have been built into the NEOH project design. To demonstrate adequate protection of the natural-production of fish in these WSR, the NEOH FEIS and record of decision should clearly display how the recommendations of the ISAB and IASRP have been built into the NEOH project design and operations. Without an explicit plan for monitoring and evaluation of trends in natural production to demonstrate success or failure of the supplementation program to protect natural production and to identify any expected triggers for modification of the supplementation program, further risks to the already at-risk natural spawning population appears significant.

#### *Description of Project Effects to Fish Habitat*

**Facility Construction**—The construction of this facility will temporarily remove available habitat for migrating and rearing salmonids as more fully described above (*Summary of effects by species*).

**Facility Operation**—A loss of available rearing habitat is expected in the length of channel between the intake and project outfall. Lower flows will leave less available habitat. Loss of riparian vegetation is also likely in the 1900 feet between the intake and

project outfall due to the reduced flows in the summer growing season. This impact is especially important for juvenile salmonids that tend to stay in the margins of the river. Localized loss in available habitat and riparian vegetation will also occur where riprap replaces native bank materials and where the intake and project outfall structures are located.

Monitoring of Chinook spawning habitat during operation of the facility is implied (NEOH DEIS 3-32), stating that if spawning habitat is negatively impacted by water diversion, modifications to the water management strategy would be implemented. The monitoring is not defined, nor are possible changes to water management strategies.

Water quality may be affected by the project, and monitoring of water quality is not well described. Refer to previous discussion of *Relevant Water Quality Parameters*.

#### *Summary of effects by species*

**Bull Trout**—The Imnaha River bull trout population is healthy and considered at “low risk” of extinction (Buchanan, et al.1997). Resident and fluvial (migratory) bull trout occur in the Imnaha subbasin. There are no current estimates on size of the Imnaha River bull trout population. The primary effects from proposed construction and operation of NEOH facilities would be on the fluvial form of this population, which migrates past both the proposed Final Rearing Facility and the existing Satellite Facility enroute to spawning areas in the upper Imnaha River. Most migrating adults would be upstream of both facilities prior to the opening of the instream work window. Construction activities would have minimal and short-term effect on Imnaha bull trout. Facility operation of both facilities would have more impact. Decreased flows in the 1900 foot section affected by the withdrawals at the Final Rearing Facility could have some negative impact on migrating fish. However, since most bull trout would have migrated past the facility prior to low flows, this impact is not expected to be substantial. Operation of the Satellite Facility would have a far greater impact on migrating bull trout. The facility would start operations approximately a month earlier than it does currently. All bull trout passing through the facility would be kept in a holding pool until being hand-placed into a pipe leading back to the river. The affects to bull trout from the stresses of this procedure are hard to quantify, but the risk of pre-spawning mortality is increased significantly. Additional detail on monitoring of fish migration and the measures to ensure successful fish passage should be added to document that this issue has been adequately addressed at both facilities.

**Steelhead**—The Imnaha River steelhead population appears recovering. Based on spawning counts and counts at the Lower Granite dam, populations have been on an upward trend since 1995 (Brad Smith, ODFW, pers. comm.). Effects on steelhead in the Imnaha River from proposed construction and operation of NEOH facilities are expected to be limited on spawning adults. The timing and location of steelhead spawning does not coincide with the construction work or operation of proposed NEOH facilities. Returning adults migrate up the Imnaha River during high flows in early spring, prior to the instream work window. Spawning occurs primarily in the tributary streams. Kelts

020-06  
(con't.)

returning downstream may encounter a delay in migration when the weir is in operation at the Satellite Facility. Panels of the weir can be lowered to allow downstream migrating adults to pass through, although it is not clear what monitoring would be in place to trigger this action or how monitoring would trigger this action. This delay would not have a significant impact on the Imnaha River steelhead population. The primary effect to Imnaha River steelhead would be on rearing juveniles. Although juvenile steelhead emerge and begin rearing within tributary streams, it is likely that some rearing takes place in the Imnaha River. Construction activities will displace rearing fish, and some habitat loss will result from placement of riprap. At low flows there will be a net loss in rearing habitat in the 1900 feet between the intake and outfall of the Final Rearing Facility, due to the effect of water withdrawals. The same habitat loss would occur, although to a lesser extent, at the Satellite Facility. There are approximately 397 miles of steelhead spawning and rearing habitat within the subbasin (USDA 2003). Construction and operation of the proposed facilities would decrease habitat quantity and quality within approximately 0.25% of the subbasin rearing habitat. Although the effect on steelhead is expected to be incremental, it is not consistent with WSR management direction for protection and maintenance of fish habitat or Northwest Power and Conservation Council (NPCC)/BPA tributary habitat restoration. There appears to be opportunities to build habitat enhancing features into the facility design. Measures should be incorporated to mitigate habitat loss and displayed in the DEOH FEIS.

Chinook—The Chinook salmon population within the Imnaha River has been on an improving trend since 1995 (Brad Smith, ODFW, pers. comm.). Although the hatchery facilities are designed to improve Chinook salmon populations within the Imnaha River, there are some negative effects to the wild population. Spring/summer Chinook are not known to spawn in the reach of the Imnaha River containing the proposed Final Rearing Facility (J. Harbeck, NPT, pers. comm.). However, spawning does take place below and above the Satellite Facility. All adults passing the Satellite Facility are held for a period up to 24 hours in the holding facility, anesthetized, weighed, and measured (R. Zollman, NPT, pers. comm.). Fish allowed to pass upstream of the facility are put into a pipe leading to a covered recovery pond, from which they can swim into the river once recovered. This process can have a negative effect on adult Chinook, and likely results in an increase in pre-spawning mortality. Juvenile Chinook rear in the Imnaha River and the lower reaches of major tributaries (USDA 2003). Proposed construction activities at both facilities would displace rearing fish, and some habitat loss will result from placement of riprap. At low flows there will be a net loss in rearing habitat in the 1900 feet between the intake and outfall of the Final Rearing Facility, due to the effect of water withdrawals. The same habitat loss would occur, although to a lesser extent, at the Satellite Facility. There is currently 130.6 miles of spring/summer Chinook salmon rearing habitat in the Imnaha Subbasin (USDA 2003). The proposed facilities would impact a portion of habitat within approximately 0.76% of the subbasin rearing habitat, an incremental impact, however this impact is not consistent with WSR management direction for protection and maintenance of fish habitat and should be mitigated (see steelhead discussion above). The overall effect to the Imnaha River spring/summer Chinook integrated population from the proposed facilities would be to increase it, however, negative effects are anticipated to naturally spawning wild individuals.

020-06  
(con't.)

Indiscriminate release of excess hatchery broodstock, unmarked fry and presmolts may complicate monitoring and recovery of the independent populations identified by the Interior Columbia Basin Technical Recovery Team in the Imnaha and Grande Ronde (see [http://www.nwfsc.noaa.gov/trt/trt\\_columbia.htm](http://www.nwfsc.noaa.gov/trt/trt_columbia.htm)). Operational plans for maintenance of these independent populations (especially Imnaha/Big Sheep Creek stocks) should be included in the NEOH FEIS.

### Wildlife

*ORV Description*—The wildlife habitat and population diversity of the Imnaha River canyon offers unparalleled opportunity for sport and viewing. The wildlife of the Imnaha is one of the contributing factors to the designation of the Hells Canyon National Recreation Area. Both wildlife populations and habitat are ORVs.

*Wildlife Management Goals from the Imnaha RMP*—The desired future is an increase and then stable population of bighorn sheep within the lower Imnaha River corridor. Over time, quality habitat is maintained or increased for all wildlife. No reduction in wildlife or proposed, endangered, threatened, or sensitive species habitat or population.

*Discussion in NEOH DEIS (3-53, 3-54)*: “Prior to construction, up to three feet of rock fill would be placed on the lower end of the site. The vegetated riparian zone would be largely avoided. Construction of facilities would result in about three and one-half acres of new impervious surface at the six-acre facility.”

020-06  
(con't.)

“The existing bridge would be relocated about 200 feet upstream of its current location, to a stable rock bar. A small number of trees and at least one snag would be removed due to placement of the bridge abutments. Additional snags occur in close proximity to the proposed bridge location, however, and it is possible that one or more additional snags would be affected either directly by placement of the structure, or indirectly if adjacent snags (overhanging canopy) interfere with equipment operation for safe placement of the panel bridge. Removal of large, dominant trees (black cottonwood and ponderosa pine) may limit opportunities for bald eagle roosting in the immediate vicinity. However, removal of snags and potential perch trees would be restricted to this location, and many others are available off-site.”

“Rock fracturing, drilling and excavation for installation of the intake structure and concrete cutting to dismantle the old bridge abutments would produce high, periodic noise levels that are likely to disturb wildlife within a mile or more of the site and alter normal behavior patterns. Temporary displacement of some individuals may occur. The highest noise level activities would primarily occur between July 15 and August 15, during the instream work window. Noise impacts to wintering bald eagles that may use the area would be avoided by this timing. No nesting territories are documented near the site (ONHP 2002). Disturbance levels resulting from remaining construction activities would likely be reduced, due to the lower noise levels generated, but may also cause temporary displacement of local wildlife.”



“The ability of many Imnaha subbasin riparian zones to support wildlife and provide aquatic habitat has been reduced by roads and livestock grazing. Exclusion of cattle from the riparian zone and supplemental planting of native species at the proposed Imnaha Final Rearing Facility would, in the long-term, improve the functioning condition of the riparian habitat along this stream segment. Some long-term adverse wildlife impact is expected at this site from the loss of a small amount of riparian habitat where structures would be placed, increased human access and human-related disturbances, and disturbance to potential bald eagle roosting habitat outside of the critical wintering period.”

*Description of Project Effects*—The project will not affect bighorn sheep, a particular concern for management within the river corridor, and will have little effect to the river’s wildlife habitat.

The effects discussion in the NEOH DEIS is, however, unclear as to whether displaced species would find ample replacement habitat in the immediate area or if adjacent habitat is limited and dispersing species would encounter stresses such as predation. The NEOH DEIS effects discussion for listed species should be clarified. Without the information provided by consultation, it is difficult to make conclusions regarding effects to listed species.

#### Vegetation/Botany

020-06  
(con't.)

*ORV Description*—The Imnaha River drainage contains no less than thirteen rare and/or endemic plant species. Unique plant communities are found within the lower reaches of the river as well as those upper reaches of the river where limestone is abundant. The Imnaha is unique in that all of the plant species or communities mentioned are found within this one drainage. This points to the great diversity of vegetation along the Imnaha and the range of elevation and geomorphologic features.

*Vegetation/Botany Management Goals from the Imnaha RMP*—The desired future condition of the botanical resource will emphasize the maintenance and enhancement of the numerous plant species and communities that are found in the river corridor. All species that currently exist will continue to thrive and the occurrence of nonnative plants that compete with and displace native species will be reduced or eliminated. Special attention will be placed on those plant species or communities that are endangered, threatened, sensitive or otherwise unique. In some instances, management activities that are not compatible with these goals may be modified or curtailed.

*Discussion in NEOH DEIS (3-62, 3-63)*: “Most of the project activity is proposed in the center of the site, which currently lacks woody vegetation and is dominated by introduced pasture shrubs, grasses and weedy forbs. Removal of native vegetation is primarily limited to the intake structure and intake pipeline corridor (about 1000 feet, most of which is along an existing road), outfall structure (less than 20 feet) new bridge abutments (about 40 feet on each side of the river) and in the corridor for a new power line (about 300 feet). However, a small number of mature trees and at least one snag

would be removed from the proposed bridge relocation site. Additional snags occur in close proximity to the proposed bridge location, however, and it is possible that more than one snag would be removed for the structure or to allow for safe equipment operation during structure placement. Where possible, the riparian zone would be replanted with native vegetation.”

“Exclusion of cattle from the riparian area and planting disturbed areas with native species would encourage more diverse riparian vegetation along the riverbank. Weed control at the project site would also encourage reestablishment of native vegetation.”

*Description of Project Effects*—Most activities proposed at the Imnaha Final Rearing Facility will occur on sites already disturbed by grazing. Therefore, in most areas affected by the proposal, unique habitats and native plant species and communities are not likely to be affected. The proposed project also contains provisions for eliminating encroachment of nonnative plants, which is important in the river corridor.

However, some of the riparian areas affected by the project may be largely undisturbed. The Imnaha RMP emphasizes that special attention will be placed on those plant species or communities considered to be endangered, threatened, sensitive or otherwise unique. The NEOH DEIS is unclear about whether or not endangered, threatened, sensitive, or otherwise unique species and communities are present in riparian areas that will be disturbed by the proposal and is also unclear about effects to them. Although the WSR Act does not provide for regulatory control of private lands, collaboration with BPA could greatly improve effects to the vegetation/botany of the riparian areas disturbed in this project. It should be possible, for example, to determine if there are endangered, threatened, sensitive or otherwise unique riparian plant species or communities present, in riparian areas that will be disturbed by the proposal and, if so, to develop mitigation measures.

020-06  
(con't.)

The NEOH DEIS states that “weed control” will occur at the project site; however, specific as to measures are not defined. Given the threat of invasive weeds to the vegetation/botany ORV, the final project proposal would be improved by ensuring that construction equipment and all other project-related vehicles are free of invasive weed seeds. Additionally there should be prompt revegetation of disturbed areas and an invasive weed control plan.

### History/Prehistory

*ORV Description*—Portions of the Imnaha River corridor that have been inventoried contain a dense concentration of sites, with many more sites yet to be discovered. Extrapolating from the known sites that are either named or eligible to the National Register of Historic Places, it appears the Imnaha River canyon contains a unique concentration of both historic and prehistoric sites. Both historic and prehistoric cultural resources are ORVs.

*History/Prehistory Management Goals from the Imnaha RMP*—Sites are protected until management actions can be determined. These actions may include data collection, mitigation, interpretation, education, or preservation. Selected sites would be used for public education and interpretation. All activities would be in coordination and cooperation with the Nez Perce Tribe.

*Discussion from NEOH DEIS (3-88)*: “Oregon Parks and Recreation Department records indicated only one cultural site in the area (35WA812), near the mouth of Dunlop and Thorn Creeks, located on the opposite side of the Imnaha River from the project area. No proposed new facilities (bridges, power lines, etc.) would be located near this site.”

“During the on-site survey, an irrigation ditch was observed on the southwest edge of the project site within the area of potential effect (where site disturbance or construction is expected, Figure 2-6). In addition to the irrigation ditch, an old homestead and orchard are known to exist in the project vicinity outside of the area of potential effect. A site shovel-survey showed no indication of other cultural materials. Since the ditch, homestead and orchard would be avoided by project activities, no impacts to cultural resources are anticipated. However, construction activity would be monitored by a person knowledgeable about cultural resources. If evidence of cultural materials is found or if impacts to known materials occur, site work or activity would be halted until the site could be assessed. Notification of and consultation with the SHPO, NPT Cultural Resource Program and CTUIR would also occur as appropriate.”

020-06  
(con't.)

*Description of Project Effects*—Based on pre-disturbance surveys, project construction will avoid known sites. On-site construction monitoring will mitigate the potential to affect any unknown sites.

#### Traditional Use, Lifestyle Adaptation

*ORV Description*—The uniqueness of traditional uses, derived from the river related climatic and geographic conditions, has suspended in time a part of history. Adding to the uniqueness of this traditional use in the Imnaha Valley is the reality that similar areas have ceased to provide this important land use or have modernized to a point that no longer represents traditional uses. The Nez Perce and later the Euro-Americans adapted to what the river corridor had to offer. Although the Nez Perce lifestyle is not evident in the Imnaha River, except through historical and prehistorical sites, the Euro-American traditional lifestyle is still very visible. The values and uniqueness of both the Imnaha River Valley and the local lifestyles are recognized nationally.

*Management Plan Goals for Private Land from the RMP*—The goal is to work cooperatively with private landowners to achieve consistency with the following:

- Conservation and continuance of forest/grazing land for forest/grazing uses and farmland for farm uses, retaining the pastoral or natural setting upon which those uses take place
- Maintenance and protection of the free-flowing nature of the river

- Conservation of scenic, wilderness, cultural, scientific, and other values contributing to the public benefit
- Preservation of all features believed to be biologically unique
- Protection and maintenance of fish and wildlife habitat
- Protection of archaeological and paleontologic sites
- Preservation of historic sites associated with and typifying the economic and social history of the region and the American west
- Continuation of traditional and existing uses and developments in a manner compatible with the WSR Act, and river management plan
- Provision for outdoor recreation use in so far as it is compatible with traditional and existing uses and can be accommodated within pastoral or natural settings

*Discussion in NEOH DEIS (3-112, 3-113, 3-115, 3-116):* "The proposed Imnaha Final Rearing Facility would be a conditionally permitted land use under the Wallowa County zoning regulations and would be subject to the County's Hearing Review process. The proposed facility would be generally compatible with surrounding agricultural and residential uses and the adjacent Upper Imnaha River Road. The facility would be a new land use at this location and would convert pasture along the river to fish production. Once operational, the level of activity at the facility would be limited and compatible with the residence and road across the river. Much of the facility would be screened from view by existing riparian vegetation, which would be retained. Design considerations discussed under Section 3.9 of this EIS would enhance compatibility and maintain visual integrity."

020-06  
(con't.)

"The Proposed Action would affect existing roadways and traffic levels by temporarily increasing traffic during construction and slightly increasing traffic once the Imnaha Final Rearing Facility becomes operational. The Imnaha Final Rearing Facility would generate a few daily trips associated with the residence and bunkhouse, but the number of trips would be similar to those generated by nearby residential and agricultural uses. Potential traffic hazards at the Imnaha Final Rearing Facility would be addressed by relocating the bridge and constructing a turning lane on the Upper Imnaha River Road to increase sight distance, allow passing and accommodate a wider turning radius for fish hauling trucks accessing the site. Given the low daily traffic volumes in the vicinity of the site, the short duration of construction, the low numbers of trips related to operations, and the planned road and bridge improvements, the Proposed Action would cause only limited transportation impacts."

"Implementing the Proposed Action would not result in any group of people in the area, including racial, ethnic or economic groups bearing a disproportionately high share of population or employment impacts, quality of living changes or environmental consequences. "

"The Proposed Action would not result in measurable short- or long-term impacts to local population conditions. Most of the new full-time, seasonal and temporary workers would likely come from the local area as would most construction contractors and employees. A few very specialized labor requirements may be met with workers from elsewhere. If

most contractors and workers came from outside the region, the increase to area population may be noticeable given the slow growth or decline in population over the past ten years.”

“Implementation of the Proposed Action would result in some additional employment opportunities in Wallowa and Union Counties. The construction phase of the Proposed Action would provide temporary employment for several dozen construction workers most of which would probably come from the local labor pool. Operation of the various proposed hatchery facilities would result in about three additional full-time employees (possibly from outside the area) and about ten additional seasonal employees (probably from within the local area). This relatively small increase in full-time and seasonal employment would result in only minimal increase in demand for support industries or government services. City tax revenues or expenses are not expected to change noticeably nor would overall regional economic productivity or cost of living be measurably changed. The direct impacts, while small, are expected to be beneficial in terms some increased employment and increased demand for goods and services.”

“Implementation of the Proposed Action would result in an increase in the importance of the fisheries sector within the local economies of Wallowa and Union Counties. This could result in a slight increase in recreation and tourist activity within the two county area, resulting in benefits to both social culture and regional economic productivity.”

*Description of Project Effects*—The project does not affect traditional use, lifestyle adaptation, particularly if the recommendations discussed under scenery are implemented.

020-06  
(con't.)

## **Innaha Satellite Facility**

The following discussion is focused on those components of the Innaha Satellite Facility that affect the river's free-flowing condition and are therefore water resources projects subject to Section 7(a). Project proposals are evaluated as to their effect on the river's free-flowing condition, water quality and outstandingly remarkable values. A detailed project description is provided in the introduction of the *Wild and Scenic Rivers Act Preliminary Section 7 (a) Determination*.

Components of the Innaha Satellite Facility proposal that are or appear to be within the ordinary high water mark of the river include:

- Modifications to the water intake structure and an associated 100 feet of riprap upstream and in the immediate area of the intake
- A new fish weir on the existing weir's base, but with new concrete abutments upstream and downstream of the new weir on both sides of the river
- A new fish ladder and associated riprap adjacent to the existing fish ladder

Refer to Figure 2.8 (NEOH DEIS 2-16) for a detailed drawing of the proposal.

### **Description of Effects to Within-Channel Conditions**

#### Position of the proposed activity relative to streambed and streambanks

##### *Modifications to the water intake structure:*

"Expansion of the intake structure and upgrades to the existing screen would require the use of a cofferdam and dewatering pumps. Installation would require disturbance of about 900 square feet of bed and bank upstream of the existing intake. The submersible dewatering pumps would route water through the existing intake pipeline to the existing raceway (that would be used as an on-site sediment basin) and through the outfall pipe that discharges water at the current fish ladder entrance. The construction area would be limited to the riprap portion of the banks and would not disturb riparian vegetation" (NEOH DEIS 3-35).

"About 100 cubic yards of riprap would be placed at and upstream of the intake to stabilize it. Riprap would be placed stream-side of existing vegetation so as not to impact riparian vegetation or shading" (NEOH DEIS 3-35).

##### *New weir:*

"The proposed action would replace the existing weirs with a Chiwawa weir on the existing concrete sill. Installation would require the addition of concrete abutment walls on both riverbanks. Construction would take place within the area already impacted by the existing weir and concrete sill. Because spring/summer Chinook spawners could be present at the time of instream work, a portable picket weir would be installed slightly downstream to direct adults into the fish ladder for collection or upstream passage. Sandbags would be used to dewater the weir construction area, one side of the river at a time" (NEOH DEIS 3-36).

*New fish ladder:*

"A new fish ladder would be installed alongside the existing ladder coinciding with the weir installation. Riprap would stabilize the ladder at the river entrance, and a minor amount of riparian vegetation would be impacted. The existing ladder would remain to increase water flow and fish attraction to the new ladder" (NEOH DEIS 3-36).

Changes in active channel location, geometry, slope, and/or form

The armoring (riprap) associated with the modified intake and bridge abutments will accelerate the river's flow in a localized area, potentially decreasing bank stability and increasing erosion in areas of redirected flow. The new concrete abutments extend into the channel, resulting in slightly more constriction of flow. The construction at both of these sites, however, is generally within the footprint of existing facilities and stabilization measures (riprap). Resulting change in channel structure is anticipated to be minor.

020-07

Relevant water quality parameters

"Water temperature changes are not anticipated as a result of the Imnaha Satellite proposal. Cold water fish are identified as a beneficial use under Section 303d of the Clean Water Act. Water quality at the facility is appropriate for fish culture use, although a chiller may be necessary for incubation due to high river temperatures during July to late August. Chilled water would likely be cooler than the receiving river water, but would mix rapidly after release downstream of the facility. Temperature changes would be minor and localized, and not expected to impact water quality or fish" (NEOH DEIS 3-77).

Navigation of the river

Above the town of Imnaha, including the project area, river flows are too low to accommodate boating.

020-08

**Riparian, Floodplain and Upland Effects**Vegetation composition, age structure, quantity, or vigor

"Installation of the power supply line and the additional surface water pipeline would not disturb riparian vegetation" (NEOH DEIS 3-34). The riprap associated with the modified intake structure "would be placed streamside of existing vegetation so as not to impact riparian vegetation of shading" (NEOH DEIS 3-35). "A new fish ladder would be installed alongside the existing ladder coinciding with the weir installation. Riprap would stabilize the ladder at the river entrance, and a minor amount of riparian vegetation would be impacted" (NEOH DEIS 3-36).

Relevant soil properties

Various construction activities will disturb ground “and add about one-quarter of an acre of impervious surface to the site, which may lead to increased or rerouted erosion and sediment carried into the river. Increased runoff during construction is expected to be short-lived” (NEOH DEIS 3-34).

020-09

Relevant floodplain properties

The riprap associated with the modified water intake and the expanded concrete abutments of existing fish weir will redirect flows and may result in small areas of localized bank instability and increasing erosion.

020-10

**Effects to Existing Hydrologic or Biologic Processes Due to Changes in On-Site Conditions**

“Combining existing and proposed surface water withdrawals, no more than about 21 cfs would be diverted from the river for juvenile acclimation and release (March – April) and adult collection, holding and spawning (May 15 – September 30)” (NEOH DEIS 3-36).

“An additional six cfs would be required during adult collection to operate the adult recovery by-pass pipeline system. During adult collection, a second separate intake is operated at a location about 800 feet downstream from the existing surface water intake (about 130 feet upstream from the existing picket fish barrier). This intake feeds a fish return channel with a maximum water right of six cfs and is operated only when adults are migrating. The intake diverts water into a channel with a 21-inch flow return pipe extending from the fish recovery area to a discharge location just upstream from the fish barrier” (NEOH DEIS 3-36).

“The existing intake structure would be enlarged to accommodate desired higher flow rates for the facility. The intake structure modification would add capacity to the current intake structure to provide the about 20 cfs needed for fish acclimation as described in Section 3.2.3.2 of this EIS. An additional 6 cfs diversion would be required during adult collection to operate the adult recovery by-pass pipeline system. During extremely low flow periods of early fall, these diversions could alter the river’s natural flow regime in the immediate vicinity of the intake. However, since these diversions would be temporary and localized they are not expected to affect the overall flow of the river in the area” (NEOH DEIS 3-77).

Note: The NEOH DEIS states the existing and proposed water withdrawal at 21 (DEIS 3-36) and 26 cfs (NEOH DEIS 2-17), respectively.

020-11

“Riprap around the intake may slightly alter the hydrology of the river in the area, potentially causing very minor, localized modifications to habitat use. Preservation of natural meanders would occur, where possible. Disturbed soils may create minor short-term sedimentation in the river during cofferdam removal” (NEOH DEIS 3-35).



“The placement of sandbags and the temporary picket weir during construction of the new weir has the potential to create minor sedimentation and affect fish habitat if river hydraulics are influenced” (NEOH DEIS 3-36).

“Construction of the weir and ladder during the current ODFW instream work window may impact the passage of adult spring/summer Chinook, potentially stressing individuals. Monitoring by fisheries biologists during construction would take place to observe passage conditions and determine if additional physical passage upstream or downstream of the construction area is necessary. Also, during their monitoring fisheries biologists would consider the need to use any alternate instream work windows to lessen impacts to spring/summer Chinook” (NEOH DEIS 3-36).

### **Magnitude and Spatial Extent of Potential Off-Site Changes**

Likely changes from this project proposal include scour and erosion from armoring of modified intake and new concrete abutments of existing weir. These effects are anticipated to be limited to localized effects near the structures and within the project area.

020-12

### **Duration of Effects**

Effects from construction activities will be temporary and localized. Long-term project effects such as erosion from armored modified intake and concrete abutments of existing weir will vary little from the existing situation. The reduced flow from additional water withdrawal will persist for the life of the project.

020-13

### **Effects to Outstandingly Remarkable Values**

The Imnaha WSR's ORVs are its scenery, recreation, fisheries, wildlife, vegetation/botany, history/prehistory, and traditional use/lifestyle adaptation. Each ORV is described through four subsections:

020-14

- Significance of value (ORV Description)
- Management Goals from the Imnaha RMP
- Discussion in NEOH DEIS
- Description of Project Effects

Refer to discussion of Imnaha Rearing Facility for *ORV Description* and *Management Goals*.

### **Scenery**

#### *Discussion from NEOH DEIS*

NEOH DEIS (3-106, 3-107)—“The Imnaha Satellite Facility (Figure 2-7) modifications would include installing a new fish barrier across the river to replace an existing diversion weir, installing a new fish ladder next to the existing fish ladder, enlarging the

fish holding area, constructing a new settling basin, and modifying the existing intake structure. The existing spawning shelter would also be enlarged to accommodate a new incubation room. New powerlines would be buried in the Imnaha River Road.”

“Figure 3.9-10 (page 3-103) shows a “before” and an “after” view of the Imnaha Satellite Facility site as seen from Imnaha River Road. As shown in the simulation, the new fish ladder and addition to the spawning shelter would be apparent but not particularly noticeable from the roadway. These effects would only be visible to the public from limited places along Imnaha River Road immediately adjacent to the site and from the visitor parking area. In general, as seen by the public, the facility’s appearance with proposed changes would be very similar to its current appearance, except during and immediately after construction. Given the site’s location within a Wild and Scenic River corridor and within a National Forest area with “retention” VQOs, the anticipated visual effects could represent an adverse visual effect. However, because views of the facility that would occur after that Proposed Action would not be substantially different from existing views, and because the existing facility is somewhat of a public attraction (it is open to visitors), the amount of change in visual quality is expected to be minor.”

*Description of Project Effects*—The appearance of the Imnaha Satellite Facility will be little changed from the existing appearance; the modifications would not be noticeable to most visitors.

020-15

### Recreation

*Discussion from NEOH DEIS (3-82)*—“Proposed modifications to this facility would not change any recreational opportunities around the site. However, if the existing diesel generator is replaced by the proposed underground power line (buried in the road right-of-way), the noise levels from the Satellite Facility would decrease, which would provide a better experience for nearby forest visitors. Also, the proposed new communication line to the facility could aid in emergency situations and overall area management.”

*Description of Project Effects*—The facility will appear unchanged to the recreationist after the short-term construction period. There will be positive effects from reduced noise due to replacement of the diesel generator by electrical power and improved emergency communications. To minimize potential impact on recreation use of the Imnaha River Road, placing underground power should occur prior to Memorial Day or after Labor Day.

020-16

### Fisheries

*Discussion in NEOH DEIS*—For a description of specific habitat impacts, refer to the description of project effects relative to free-flow (Within-Channel Conditions; Riparian, Floodplain and Upland Effects; Effects to Hydrologic or Biologic Processes Due to Changes in On-Site Conditions; Magnitude and Spatial Extent of Potential Off-Site Changes; and Duration of Effects), in addition to the following description.

*Description of Project Effects to Fish Populations*

Refer to Imnaha Rearing Facility discussion (*Description of Project Effects to Fish Populations*).

020-017

*Facility Construction* --The construction of this facility will temporarily displace fish, affect migration, and remove available habitat. Placement of cofferdams will alter stream flow upstream and downstream of the structure and directly reduce instream habitat. Significant amounts of sediment will be added to the river. The effects of this sediment will be short-term and are not expected to last long beyond the construction period. Associated best management practices to reduce sedimentation are part of the Proposed Action; however, no specifics are provided.

020-18

Information in the NEOH DEIS is insufficient to evaluate the degree of impact to migrating and resident fish. Some fluvial bull trout and Chinook salmon are migrating to the upper Imnaha River during the ODFW instream work window of July 15 to August 15. Sediment reduced available habitat and the human presence and noise associated with construction activities will have a negative effect on migrating adults, as well as juveniles near the construction site. The weir and fish ladder appear to be constructed simultaneously, which is of special concern. The amount of this instream work (especially spanning the width of the Imnaha River) may have a significant negative impact on upstream migration of these fish. The extent of this impact cannot be determined with the information provided in the NEOH DEIS.

During the construction of the new weir, a portable picket weir would be installed slightly downstream to direct adults into the fish ladder for collection or upstream passage (NEOH DEIS 2-36). It is not clear how this will work particularly with the new ladder being installed simultaneously with the new weir. If fish are to be collected and moved around the construction site, there is a risk of pre-spawning mortality from handling and handling stress. The NEOH DEIS states that monitoring by fisheries biologists will take place during construction to observe passage conditions and determine if additional physical passage upstream or downstream of the construction area is necessary (NEOH DEIS 3-36). It also states that during monitoring fisheries biologists would consider the need to use any alternate instream work windows to lessen impacts to spring/summer Chinook. Other species are not mentioned. How the monitoring would be accomplished, and how additional passage would be provided is not discussed (refer to *Summary of effects by species* in the Imnaha Final Rearing Facility discussion).

020-19

*Facility Operation*—The new weir will be operated from June to September. This is a longer season than the existing weir is able to operate. More migrating wild spring/summer Chinook salmon will be intercepted. More migrating bull trout will also be intercepted, impacting a larger number of these fluvial fish than the current operation. The NEOH DEIS states that holding and spawning of fish may result in pre-spawning stress and potential mortalities of Chinook or other species that enter the facility (NEOH DEIS 3-39). All bull trout will presumably be held and handled prior to resuming their upstream migration. The increase in potential for pre-spawning mortality within the Imnaha River bull trout population is implied. However, the extent of the effect on this

020-20

population cannot be determined without more information (refer to *Summary of effects by species* in the Imnaha Final Rearing Facility discussion).

020-20  
(con't.)

Instream migration of juvenile salmonids is not discussed in any detail in the NEOH DEIS. The current facility has been a passage barrier or impediment to migrating juveniles. The new facility would be in place for a longer period of the year, lengthening the period where juvenile movement may be impeded. It is not clear if juveniles can pass downstream volitionally when the new weir is in operation.

020-21

It is not clear how downstream migration of adult bull trout or steelhead kelts will be facilitated. More information on how monitoring will take place and how downstream passage will be promoted will be needed to estimate effects to downstream migrants. The NEOH DEIS (3-38) states that vigilant monitoring of fish collection and instream structures would take place, especially during periods of low flow, to insure that listed species are not negatively impacted by the upgraded structures. It is not clear how this monitoring will be done, or what measures could be taken if listed species are negatively impacted.

020-22

Improved attraction to the new ladder should decrease adult salmonid migratory delays. The existing fish ladder would remain in place to increase water flow and fish attraction to the new ladder (NEOH DEIS 3-36). In addition, the new ladder will be equipped with about a 12-inch wide opening to allow for increased attraction flow near the new weir (NEOH DEIS 3-38). The NEOH DEIS also states that the ladder entrance is currently too far downstream and fish cannot locate the entrance to the ladder easily, causing fish to drop back downstream, where they often spawn (NEOH DEIS 3-36). It is not clear how the new facility will deal with this issue, since the new ladder and weir locations are not proposed to change.

Rearing juvenile salmonids will likely be negatively effected within the section of the Imnaha River between the intake and outfall due to seasonal reductions in stream flow. Habitat availability and utilization will be seasonally reduced in this reach for the life of the facility (see "Facility Operation" below). Some negative effects will also occur due to loss of rearing habitat resulting from the intake and outfall structures and associated riprap.

020-23

#### *Description of Project Effects to Fish Habitat*

**Facility Construction**—The construction of this facility will temporarily remove available habitat for migrating and rearing salmonids as described above.

The design of the proposed fish ladder, trap, temporary holding and bypass facilities are not discussed. Effects on non-target fish from the installation of the ladder and associated facilities cannot be determined without additional information about design.

020-24

**Facility Operation**—A loss of available rearing habitat is expected in the length of channel between the intake and outfall. Lower flows will leave less available habitat. A

020-25

loss of riparian vegetation associated with construction of the intake and outfall structures is expected. Additional riparian vegetation loss is also expected in the area between the intake and outfall due to lower seasonal flows. This will result in a negative effect on rearing habitat, especially for juvenile salmonids that tend to stay in the margins of the river. A small loss in available habitat will also be realized where riprap replaces native bank materials.

020-25  
(con't.)

The NEOH DEIS mentions that habitat loss will occur, but no reference is made to possible habitat improvements that would compensate for this habitat loss.

020-26

The release of 490,000 smolts into the upper Imnaha River, when added to the number of smolts produced naturally, likely exceeds the productive capacity of this river. Smolt production within the Imnaha River has been estimated through several different methods. Carmichael and Boyce (1986) estimated 245,260 smolts were produced from the adult escapement in 1957 (the year of peak redd counts), and consider that the carrying capacity for the subbasin. The NPCC Smolt Density Model estimates that the smolt capacity from Gumboot Creek down to Big Sheep Creek is 435,289. The number of smolts to be released in the river under this plan exceeds either of those numbers by a considerable amount. The direct and indirect effects on naturally produced juvenile salmonids in the Imnaha River from these released smolts cannot be evaluated without more discussion in the NEOH DEIS on this subject. When survival rates are high, as they have been the last couple years, there are high returns of hatchery adults. There is a concern of "swamping" natural production, especially in high return years. Smolt release numbers are scaled to brood stock availability. In terms of effects on natural production, smolt releases appear to be scaled backwards. That is, in higher return years, when there is more potential natural production, hatchery production is increased up to the 490,000 ceiling. Smolt releases should be examined in terms of protection of natural production, and scaled appropriately.

020-27

Refer also to Imnaha Rearing Facility, *Summary of project effects by species*.

020-28

### Wildlife

*Discussion from NEOH DEIS (3-54)*—"Proposed site improvements would disturb ground and add a small amount (one-quarter acre) of new impervious surface to the site. Construction noise and activity disturbances may alter the behavior and individual distribution of certain wildlife within the area, but these impacts are short-lived and are not expected to affect long-term use, abundance and distribution of wildlife in the area. Construction would not occur in the bald eagle wintering period and no nesting territories have been documented in the vicinity."

"The site is currently developed as a hatchery and proposed improvements would not expand the developed area or greatly increase the long-term level of human disturbance or activity over existing conditions. No snags or mature trees would be removed and the overall quality of wildlife habitat at this location would remain essentially unchanged from existing conditions."

*Description of Project Effects*—The project will not affect bighorn sheep, a particular concern for management within the river corridor, and will have little effect to the river's wildlife habitat.

The effects discussion in the NEOH DEIS is, however, unclear as to whether displaced species would find ample replacement habitat in the immediate area or if adjacent habitat is limited and dispersing species would encounter stresses such as predation. The NEOH DEIS effects discussion for listed species should be clarified. Without the information provided by consultation, it is difficult to make conclusions regarding effects to listed species.

020-29

### Vegetation/Botany

*Discussion from NEOH DEIS (3-62, 3-63)*—"Most construction activities at this existing facility would occur in areas devoid of native vegetation or in areas that are maintained as lawn and landscaping. For example, no vegetation would be removed to install a new power line in the existing roadbed. About seven young trees planted as ornamental landscaping would be removed. The new intake structure may result in minor incidental impacts to riparian vegetation as a result of brush clearing, excavation, and placement of structures and associated riprap. A minor amount of woody riparian vegetation may be removed or disturbed where the new fish ladder would be installed adjacent to the existing ladder. Riprap would be used at this location to stabilize the ladder at the river entrance."

"Only very minor impacts to native vegetation is expected at this location as the site is already operated and maintained as a hatchery facility, and proposed improvements would be confined to the existing facility area. Native plants would be encouraged through revegetation and continuing weed control efforts."

*Description of Project Effects*—The proposed activities are limited to sites already disturbed by the existing facility; therefore, new effects to vegetation/botany are limited.

020-30

### History/Prehistory

*Discussion from NEOH DEIS (3-88)*—"The NPT Archeologist is conducting a cultural resource review for the proposed powerline to be located under or along the Upper Imnaha River Road connecting the site to the existing PacifiCorp substation about six miles to the north. Though no sites are expected in the road corridor, if any are discovered during survey or installation of the line, they would be avoided by rerouting the line underground or taking it overhead to avoid further disturbance of the ground. All other construction activity would be monitored and if evidence of cultural materials is found, site work or activity would be halted and the Oregon SHPO, NPT Cultural Resource Program and CTUIR would be notified and consulted regarding more detailed investigation. Since no cultural materials were detected during the site survey, and this is

an existing facility and modifications would occur within areas already developed, no new impacts to cultural resources are anticipated.”

*Description of Project Effects*—Based on pre-disturbance surveys, project construction will avoid known sites. On-site construction monitoring will mitigate the potential to affect any unknown sites. The Wallowa-Whitman National Forest archaeologist must be consulted as well as tribal archaeologists and the SHPO.

020-31

#### Traditional Use, Lifestyle Adaptation

*Discussion from NEOH DEIS (3-113)*—“The existing Imnaha Satellite Facility is located on Forest Service land, within the boundaries of the Wallowa-Whitman National Forest and is subject to the goals and policies of the Forest Plan, the HCNRA Comprehensive Management Plan Draft EIS (U.S. Forest Service 1999), and the Imnaha River Wild and Scenic River Management Plan (U.S. Forest Service 1993a). The existing facility operates under a Special Use Permit from the Forest Service, which would be amended to allow the modifications in a manner consistent with the Forest Plan. A separate Special Use Permit would be required for the new powerline that would run underground about six miles along the Upper Imnaha River Road.”

“With the exception of a temporary increase in traffic during construction, traffic is not expected to change noticeably at the Imnaha Satellite Facility. Because of snow, operation and access would likely continue to be seasonal. Given the low daily traffic volumes in the vicinity of the site, the short duration of construction, and the low numbers of trips related to hatchery operations, the Proposed Action would cause only limited transportation impacts.”

“Implementing the Proposed Action would not result in any group of people in the area, including racial, ethnic or economic groups bearing a disproportionately high share of population or employment impacts, quality of living changes or environmental consequences. “

“The Proposed Action would not result in measurable short- or long-term impacts to local population conditions. Most of the new full-time, seasonal and temporary workers would likely come from the local area as would most construction contractors and employees. A few very specialized labor requirements may be met with workers from elsewhere. If most contractors and workers came from outside the region, the increase to area population may be noticeable given the slow growth or decline in population over the past ten years.”

“Implementation of the Proposed Action would result in some additional employment opportunities in Wallowa and Union Counties. The construction phase of the Proposed Action would provide temporary employment for several dozen construction workers most of which would probably come from the local labor pool. Operation of the various proposed hatchery facilities would result in about three additional full-time employees (possibly from outside the area) and about ten additional seasonal employees (probably

from within the local area). This relatively small increase in full-time and seasonal employment would result in only minimal increase in demand for support industries or government services. City tax revenues or expenses are not expected to change noticeably nor would overall regional economic productivity or cost of living be measurably changed. The direct impacts, while small, are expected to be beneficial in terms some increased employment and increased demand for goods and services.”

“Implementation of the Proposed Action would result in an increase in the importance of the fisheries sector within the local economies of Wallowa and Union Counties. This could result in a slight increase in recreation and tourist activity within the two county area, resulting in benefits to both social culture and regional economic productivity.”

*Description of Project Effects*—The project does not affect traditional use, lifestyle adaptation, particularly if the recommendations discussed under scenery are implemented.

020-32